# ASRock®

# *FM2A55 Pro*

# User Manual

Version 1.0
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**FC**

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) this device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation.

**CALIFORNIA, USA ONLY**

The Lithium battery adopted on this motherboard contains Perchlorate, a toxic substance controlled in Perchlorate Best Management Practices (BMP) regulations passed by the California Legislature. When you discard the Lithium battery in California, USA, please follow the related regulations in advance.

"Perchlorate Material-special handling may apply, see www.dtsc.ca.gov/hazardouswaste/perchlorate"

**ASRock Website: http://www.asrock.com**

# *Contents*

# 1.  Introduction

Thank you for purchasing ASRock *FM2A55 Pro* motherboard, a reliable mother-board produced under ASRock's consistently stringent quality control. It delivers excellent performance with robust design conforming to ASRock's commitment to quality and endurance.

In this manual, chapter 1 and 2 contain introduction of the motherboard and step-by-step guide to the hardware installation. Chapter 3 and 4 contain the configuration guide to BIOS setup and information of the Support CD.

> Because the motherboard specifications and the BIOS software might be updated, the content of this manual will be subject to change without notice. In case any modifications of this manual occur, the updated ver-sion will be available on ASRock website without further notice. You may find the latest VGA cards and CPU support lists on ASRock website as well. ASRock website    http://www.asrock.com
> If you require technical support related to this motherboard, please visit our website for specific information about the model you are using. www.asrock.com/support/index.asp

## 1.1  Package Contents

ASRock *FM2A55 Pro* Motherboard (ATX Form Factor)
ASRock *FM2A55 Pro* Quick Installation Guide
ASRock *FM2A55 Pro* Support CD
2 x Serial ATA (SATA) Data Cables (Optional)
1 x I/O Panel Shield

> ### ASRock Reminds You...
> To get better performance in Windows® 8 / 8 64-bit / 7 / 7 64-bit / Vista™ / Vista™ 64-bit, it is recommended to set the BIOS option in Storage Configuration to  AHCI mode.

## 1.2 Specifications

| | |
|---|---|
| **Platform** | - ATX Form Factor<br>- All Solid Capacitor design |
| **CPU** | - Support for Socket FM2 100W processors<br>- 4 + 1 Power Phase Design<br>- Supports AMD's Cool 'n' Quiet™ Technology<br>- UMI-Link GEN2 |
| **Chipset** | - AMD A55 FCH (Hudson-D2) |
| **Memory** | - Dual Channel DDR3 Memory Technology<br>- 2 x DDR3 DIMM slots<br>- Support DDR3 1866/1600/1333/1066 non-ECC, un-buffered memory (see **CAUTION 1**)<br>- Max. capacity of system memory: 32GB (see **CAUTION 2**)<br>- Supports Intel® Extreme Memory Profile (XMP) 1.3 / 1.2<br>- Supports AMD Memory Profile (AMP) |
| **Expansion Slot** | - 2 x PCI Express 2.0 x16 slots<br>  (PCIE2 @ x16 mode; PCIE5 @ x4 mode)<br>- 3 x PCI Express 2.0 x1 slots<br>- 2 x PCI slots<br>- Supports AMD Quad CrossFireX™, CrossFireX™ and Dual Graphics (see **CAUTION 3**) |
| **Graphics** | - AMD Radeon HD 7000 graphics<br>- DirectX 11, Pixel Shader 5.0<br>- Max. shared memory 2GB<br>- Dual VGA Output: support DVI and D-Sub ports by independent display controllers<br>- Supports Dual-link DVI with max. resolution up to 2560x1600 @ 75Hz<br>- Supports D-Sub with max. resolution up to 1920x1600 @ 60Hz<br>- Supports AMD Steady Video™: New video post processing capability for automatic jutter reduction on home/online video<br>- Supports HDCP function with DVI port<br>- Supports Full HD 1080p Blu-ray (BD) / HD-DVD playback with DVI port |
| **Audio** | - 5.1 CH HD Audio (Realtek ALC662 Audio Codec) |
| **LAN** | - PCIE x1 Gigabit LAN 10/100/1000 Mb/s<br>- Realtek RTL8111E<br>- Supports Wake-On-LAN |

| | |
|---|---|
| | - Supports LAN Cable Detection |
| | - Supports Energy Efficient Ethernet 802.3az |
| | - Supports PXE |
| **Rear Panel I/O** | I/O Panel |
| | - 1 x PS/2 Mouse Port |
| | - 1 x PS/2 Keyboard Port |
| | - 1 x D-Sub Port |
| | - 1 x DVI-D Port |
| | - 6 x Ready-to-Use USB 2.0 Ports |
| | - 1 x RJ-45 LAN Port with LED (ACT/LINK LED and SPEED LED) |
| | - HD Audio Jack: Line in / Front Speaker / Microphone |
| **Connector** | - 6 x SATA2 3.0 Gb/s connectors, support RAID (RAID 0, RAID 1 and RAID 10), NCQ, AHCI and "Hot Plug" functions |
| | - 1 x IR header |
| | - 1 x CIR header |
| | - 1 x COM port header |
| | - 1 x HDMI_SPDIF header |
| | - 1 x Power LED header |
| | - 1 x CPU Fan connector (4-pin) |
| | - 2 x Chassis Fan connectors (2 x 4-pin) |
| | - 24 pin ATX power connector |
| | - 8 pin 12V power connector |
| | - Front panel audio connector |
| | - 2 x USB 2.0 headers (support 4 USB 2.0 ports) |
| **BIOS Feature** | - 64Mb AMI UEFI Legal BIOS with GUI support |
| | - Supports "Plug and Play" |
| | - ACPI 1.1 Compliance Wake Up Events |
| | - Supports jumperfree |
| | - SMBIOS 2.3.1 Support |
| | - DRAM, VDDP, VDDR Voltage Multi-adjustment |
| **Support CD** | - Drivers, Utilities, AntiVirus Software (Trial Version), CyberLink MediaEspresso 6.5 Trial, Google Chrome Browser and Toolbar |
| **Hardware Monitor** | - CPU Temperature Sensing |
| | - Chassis Temperature Sensing |
| | - CPU Fan Tachometer |
| | - Chassis Fan Tachometer |
| | - CPU/Chassis Quiet Fan |
| | - CPU/Chassis Fan Multi-Speed Control |
| | - Voltage Monitoring: +12V, +5V, +3.3V, Vcore |

| OS | - Microsoft® Windows® 8 / 8 64-bit / 7 / 7 64-bit / Vista™ / Vista™ 64-bit compliant |
|---|---|
| Certifications | - FCC, CE, WHQL |
| | - ErP/EuP Ready (ErP/EuP ready power supply is required) |

* For detailed product information, please visit our website: http://www.asrock.com

**WARNING**

Please realize that there is a certain risk involved with overclocking, including adjusting the setting in the BIOS, applying Untied Overclocking Technology, or using third-party overclocking tools. Overclocking may affect your system's stability, or even cause damage to the components and devices of your system. It should be done at your own risk and expense. We are not responsible for possible damage caused by overclocking.

## *CAUTION!*

1.  Whether 1866/1600MHz memory speed is supported depends on the CPU you adopt. If you want to adopt DDR3 1866/1600 memory module on this motherboard, please refer to the memory support list on our website for the compatible memory modules.

    ASRock website    http://www.asrock.com

2.  Due to the operating system limitation, the actual memory size may be less than 4GB for the reservation for system usage under Windows® 8 / 7 / Vista™. For Windows® 64-bit OS with 64-bit CPU, there is no such limitation. You can use ASRock XFast RAM to utilize the memory that Windows® cannot use.

3.  For the discrete GPUs which support Dual Graphics technology, please refer to http://www.amd.com/us/products/technologies/dual-graphics/Pages/dual-graphics.aspx#3 for details.

## 1.3  Unique Features

**ASRock Extreme Tuning Utility (AXTU)**

ASRock Extreme Tuning Utility (AXTU) is an all-in-one tool to ne-tune different system functions in a user-friendly interface, which includes Hardware Monitor, Fan Control, Overclocking, OC DNA, IES and XFast RAM. In Hardware Monitor, it shows the major readings of your system. In Fan Control, it shows the fan speed and temperature for you to adjust. In Overclocking, you are allowed to overclock CPU frequency for optimal system performance. In OC DNA, you can save your OC settings as a profile and share it with your friends. Your friends then can load the OC profile to their own system to get the same OC settings. In IES (Intelligent Energy Saver), the voltage regulator can reduce the number of output phases to improve efficiency when the CPU cores are idle without sacrificing computing performance. In XFast RAM, it fully utilizes the memory space that cannot be used under Windows® OS 32-bit CPU.

**ASRock Instant Boot**

ASRock Instant Boot allows you to turn on your PC in just a few seconds, provides a much more efficient way to save energy, time, money, and improves system running speed for your system. It leverages the S3 and S4 ACPI features which normally enable the Sleep/Standby and Hibernation modes in Windows® to shorten boot up time. By calling S3 and S4 at specific timing during the shutdown and startup process, Instant Boot allows you to enter your Windows® desktop in a few seconds.

**ASRock Instant Flash**

ASRock Instant Flash is a BIOS flash utility embedded in Flash ROM. This convenient BIOS update tool allows you to update system BIOS without entering operating systems first like MS-DOS or Windows®. With this utility, you can press the <F6> key during the POST or the <F2> key to enter into the BIOS setup menu to access ASRock Instant Flash. Just launch this tool and save the new BIOS file to your USB flash drive, floppy disk or hard drive, then you can update your BIOS only in a few clicks without preparing an additional floppy diskette or other complicated flash utility. Please be noted that the USB flash drive or hard drive must use FAT32/16/12 file system.

**ASRock APP Charger**

If you desire a faster, less restricted way of charging your Apple devices, such as iPhone/iPad/iPod Touch, ASRock has prepared a wonderful solution for you - ASRock APP Charger. Simply install the APP Charger driver, it makes your iPhone charge much quickly from your computer and up to 40% faster than before. ASRock APP Charger allows you to quickly charge many Apple devices simultaneously and even supports continuous charging when your PC enters into Standby mode (S1), Suspend to RAM (S3), hibernation mode (S4) or power off (S5). With APP Charger driver installed, you can easily enjoy the marvelous charging experience.

**ASRock XFast USB**

ASRock XFast USB can boost USB storage device performance. The performance may depend on the properties of the device.

**ASRock XFast LAN**

ASRock XFast LAN provides a faster internet access, which includes the benefits listed below. LAN Application Prioritization: You can configure your application's priority ideally and/or add new programs. Lower Latency in Game: After setting online game's priority higher, it can lower the latency in games. Traffic Shaping: You can watch Youtube HD videos and download simultaneously. Real-Time Analysis of Your Data: With the status window, you can easily recognize which data streams you are transferring currently.

**ASRock XFast RAM**

ASRock XFast RAM is a new function that is included into ASRock Extreme Tuning Utility (AXTU). It fully utilizes the memory space that cannot be used under Windows® OS 32-bit CPU. ASRock XFast RAM shortens the loading time of previously visited websites, making web surfing faster than ever. And it also boosts the speed of Adobe Photoshop 5 times faster. Another advantage of ASRock XFast RAM is that it reduces the frequency of accessing your SSDs or HDDs in order to extend their lifespan.

**ASRock Crashless BIOS**

ASRock Crashless BIOS allows users to update their BIOS without fear of failing. If power loss occurs during the BIOS update process, ASRock Crashless BIOS will automatically finish the BIOS update procedure after regaining power. Please note that BIOS files need to be placed in the root directory of your USB disk. Only USB2.0 ports support this feature.

**ASRock OMG (Online Management Guard)**

Administrators are able to establish an internet curfew or restrict internet access at specified times via OMG. You may schedule the starting and ending hours of internet access granted to other users. In order to prevent users from bypassing OMG, guest accounts without permission to modify the system time are required.

**ASRock Internet Flash**

ASRock Internet Flash searches for available UEFI firmware updates from our servers. In other words, the system can auto-detect the latest UEFI from our servers and flash them without entering Windows® OS. Please note that you must be running on a DHCP configured computer in order to enable this function.

**ASRock UEFI System Browser**

ASRock UEFI system browser is a useful tool included in graphical UEFI. It can detect the devices and configurations that users are currently using in their PC. With the UEFI system browser, you can easily examine the current system configuration in UEFI setup.

**ASRock Dehumidifier Function**

Users may prevent motherboard damages due to dampness by enabling "Dehumidifier Function". When enabling Dehumidifier Function, the computer will power on automatically to dehumidify the system after entering S4/S5 state.

**ASRock Easy RAID Installer**

ASRock Easy RAID Installer can help you to copy the RAID driver from a support CD to your USB storage device. After copying the RAID driver to your USB storage device, please change "SATA Mode" to "RAID", then you can start installing the OS in RAID mode.

**ASRock Interactive UEFI**

ASRock Interactive UEFI is a blend of system configuration tools, cool sound effects and stunning visuals. The unprecedented UEFI provides a more attractive interface and brings a lot more amusing.

**ASRock Fast Boot**

With ASRock's exclusive Fast Boot technology, it takes less than 1.5 seconds to logon to Windows® 8 from a cold boot. No more waiting! The speedy boot will completely change your user experience and behavior.

**ASRock X-Boost**

Brilliantly designed for combo overclocking, ASRock X-Boost Technology is able to unleash the hidden power of your CPUs. Simply press "X" when turning on the PC, X-Boost will automatically overclock the relative components to get up to 15.77% performance boost! With the smart X-Boost, overclocking CPU can become a near one-button process.

**ASRock Restart to UEFI**

Windows® 8 brings the ultimate boot up experience. The lightning boot up speed makes it hard to access the UEFI setup. ASRock Restart to UEFI technology is designed for those requiring frequent UEFI access. It is included in ASRock's exclusive all-in-one AXTU tuning program that allows users to easily enter the UEFI automatically when turning on the PC next time. Just simply enable this function; the PC will be assured to access the UEFI directly in the very beginning.

## 1.4 Motherboard Layout
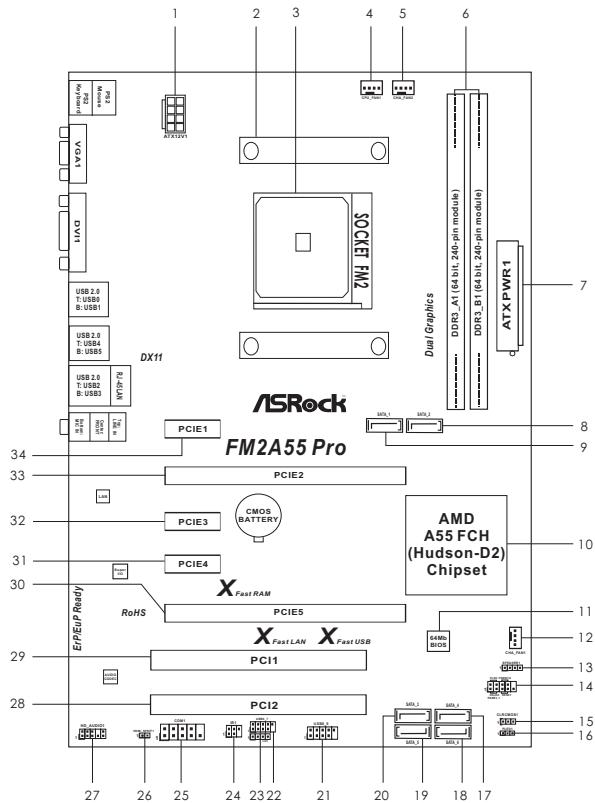


| | |
|---|---|
| 1 | ATX 12V Power Connector (ATX12V1) |
| 2 | CPU Heatsink Retention Module |
| 3 | CPU Socket |
| 4 | CPU Fan Connector (CPU_FAN1) |
| 5 | Chassis Fan Connector (CHA_FAN2) |
| 6 | 2 x 240-pin DDR3 DIMM Slots (Dual Channel: DDR3_A1, DDR3_B1) |
| 7 | ATX Power Connector (ATXPWR1) |
| 8 | SATA2 Connector (SATA_2) |
| 9 | SATA2 Connector (SATA_1) |
| 10 | Southbridge Controller |
| 11 | SPI Flash Memory (64Mb) |
| 12 | Chassis Fan Connector (CHA_FAN1) |
| 13 | Chassis Speaker Header (SPEAKER1) |
| 14 | System Panel Header (PANEL1) |
| 15 | Clear CMOS Jumper (CLRCMOS1) |
| 16 | Power LED Header (PLED1) |
| 17 | SATA2 Connector (SATA_4) |
| 18 | SATA2 Connector (SATA_6) |
| 19 | SATA2 Connector (SATA_5) |
| 20 | SATA2 Connector (SATA_3) |
| 21 | USB 2.0 Header (USB8_9) |
| 22 | USB 2.0 Header (USB6_7) |
| 23 | Consumer Infrared Module Header (CIR1) |
| 24 | Infrared Module Header (IR1) |
| 25 | COM Port Header (COM1) |
| 26 | HDMI_SPDIF Header (HDMI_SPDIF1) |
| 27 | Front Panel Audio Header (HD_AUDIO1) |
| 28 | PCI Slot (PCI2) |
| 29 | PCI Slot (PCI1) |
| 30 | PCI Express 2.0 x16 Slot (PCIE5) |
| 31 | PCI Express 2.0 x1 Slot (PCIE4) |
| 32 | PCI Express 2.0 x1 Slot (PCIE3) |
| 33 | PCI Express 2.0 x16 Slot (PCIE2) |
| 34 | PCI Express 2.0 x1 Slot (PCIE1) |

## 1.5 I/O Panel



| | | | |
|---|---|---|---|
| **1** | **PS/2 Mouse Port (Green)** | **7** | **USB 2.0 Ports (USB45)** |
| **\* 2** | **LAN RJ-45 Port** | **8** | **USB 2.0 Ports (USB01)** |
| **3** | **Line In (Light Blue)** | **9** | **DVI-D Port (DVI1)** |
| **\*\* 4** | **Front Speaker (Lime)** | **10** | **D-Sub Port (VGA1)** |
| **5** | **Microphone (Pink)** | **11** | **PS/2 Keyboard Port (Purple)** |
| **6** | **USB 2.0 Ports (USB23)** | | |
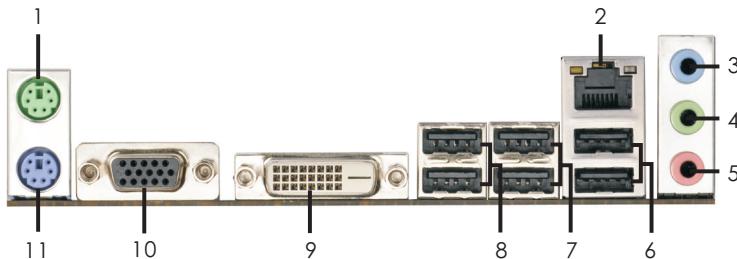
\* There are two LED next to the LAN port. Please refer to the table below for the LAN port LED indications.

### LAN Port LED Indications

| Activity/Link LED | | SPEED LED | |
|---|---|---|---|
| **Status** | **Description** | **Status** | **Description** |
| Off | No Link | Off | 10Mbps connection |
| Blinking | Data Activity | Orange | 100Mbps connection |
| On | Link | Green | 1Gbps connection |

ACT/LINK  SPEED
LED       LED



**LAN Port**
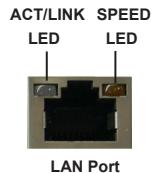
\*\* To enable Multi-Streaming function, you need to connect a front panel audio cable to the front panel audio header. Please refer to below steps for the software setting of Multi-Streaming. After restarting your computer, please double-click "Realtek HD Audio Manager" on the system tray. Set "Speaker Configuration" to "Quadraphonic" or "Stereo". Click "Device advanced settings", choose "Make front and rear output devices playbacks two different audio streams simultaneously", and click "ok". Then reboot your system.

# *2. Installation*

This is an ATX form factor motherboard. Before you install the motherboard, study the configuration of your chassis to ensure that the motherboard fits into it.

### Pre-installation Precautions

Take note of the following precautions before you install motherboard components or change any motherboard settings.

> Before you install or remove any component, ensure that the power is switched off or the power cord is detached from the power supply. Failure to do so may cause severe damage to the motherboard, peripherals, and/or components.

1. Unplug the power cord from the wall socket before touching any component.
2. To avoid damaging the motherboard components due to static electricity, NEVER place your motherboard directly on the carpet or the like. Also remember to use a grounded wrist strap or touch a safety grounded object before you handle components.
3. Hold components by the edges and do not touch the ICs.
4. Whenever you uninstall any component, place it on a grounded anti-static pad or in the bag that comes with the component.
5. When placing screws into the screw holes to secure the motherboard to the chassis, please do not over-tighten the screws! Doing so may damage the motherboard.
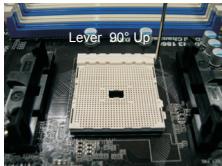
## 2.1 CPU Installation

Step 1.   Unlock the socket by lifting the lever up to a $90^{°}$ angle.

Step 2.   Position the CPU directly above the socket such that the CPU corner with the golden triangle matches the socket corner with a small triangle.

Step 3.   Carefully insert the CPU into the socket until it fits in place.

> The CPU fits only in one correct orientation. DO NOT force the CPU into the socket to avoid bending of the pins.

Step 4.   When the CPU is in place, press it firmly on the socket while you push down the socket lever to secure the CPU. The lever clicks on the side tab to indicate that it is locked.



**STEP 1:**
**Lift Up The Socket Lever**
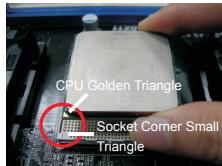
**STEP 2 / STEP 3:**
**Match The CPU Golden Triangle**
**To The Socket Corner Small**
**Triangle**

**STEP 4:**
**Push Down And Lock**
**The Socket Lever**

## 2.2   Installation of CPU Fan and Heatsink

After you install the CPU into this motherboard, it is necessary to install a larger heatsink and cooling fan to dissipate heat. You also need to spray thermal grease between the CPU and the heatsink to improve heat dissipation. Make sure that the CPU and the heatsink are securely fastened and in good contact with each other. Then connect the CPU fan to the CPU FAN connector (CPU_FAN1, see Page 13, No. 4).  For proper installation, please kindly refer to the instruction manuals of the CPU fan and  the heatsink.

## 2.3 Installation of Memory Modules (DIMM)

This motherboard provides two 240-pin DDR3 (Double Data Rate 3) DIMM slots, and supports Dual Channel Memory Technology. For dual channel configuration, you always need to install two identical (the same brand, speed, size and chip-type) memory modules in the DDR3 DIMM slots to activate Dual Channel Memory Technology. Otherwise, it will operate at single channel mode.

1.  It is not allowed to install a DDR or DDR2 memory module into DDR3 slot;otherwise, this motherboard and DIMM may be damaged.
2.  If you install only one memory module or two non-identical memory modules, it is unable to activate the Dual Channel Memory Technology.

### Installing a DIMM

Please make sure to disconnect power supply before adding or removing DIMMs or the system components.

Step 1.    Unlock a DIMM slot by pressing the retaining clips outward.
Step 2.    Align a DIMM on the slot such that the notch on the DIMM matches the break on the slot.



The DIMM only fits in one correct orientation. It will cause permanent damage to the motherboard and the DIMM if you force the DIMM into the slot at incorrect orientation.

Step 3.    Firmly insert the DIMM into the slot until the retaining clips at both ends fully snap back in place and the DIMM is properly seated.

## 2.4 Expansion Slots (PCI and PCI Express Slots)

There are 2 PCI slots and 5 PCI Express slots on this motherboard.

**PCI Slots:** PCI slots are used to install expansion cards that have the 32-bit PCI interface.

**PCIE Slots:**

PCIE1 / PCIE3 / PCIE4 (PCIE x1 slot) is used for PCI Express cards with x1 lane width cards, such as Gigabit LAN card and SATA2 card.
PCIE2 (PCIE x16 slot) is used for PCI Express x16 lane width graphics cards, or used to install PCI Express graphics cards to support CrossFireX$^{TM}$ function.
PCIE5 (PCIE x16 slot) is used for PCI Express x4 lane width cards, or used to install PCI Express graphics cards to support CrossFireX$^{TM}$ function.

1. In single VGA card mode, it is recommended to install a PCI Express x16 graphics card on PCIE2 slot.
2. In CrossFireX$^{TM}$ mode, please install PCI Express x16 graphics cards on PCIE2 and PCIE5 slots.

### Installing an expansion card

Step 1.    Before installing the expansion card, please make sure that the power supply is switched off or the power cord is unplugged. Please read the documentation of the expansion card and make necessary hardware settings for the card before you start the installation.

Step 2.    Remove the system unit cover (if your motherboard is already installed in a chassis).

Step 3.    Remove the bracket facing the slot that you intend to use. Keep the screws for later use.

Step 4.    Align the card connector with the slot and press firmly until the card is completely seated on the slot.

Step 5.    Fasten the card to the chassis with screws.

Step 6.    Replace the system cover.

## 2.5 CrossFireX™ and Quad CrossFireX™ Operation Guide

This motherboard supports CrossFireX™ and Quad CrossFireX™ feature. CrossFireX™ technology offers the most advantageous means available of combining multiple high performance Graphics Processing Units (GPU) in a single PC. Combining a range of different operating modes with intelligent software design and an innovative interconnect mechanism, CrossFireX™ enables the highest possible level of performance and image quality in any 3D application. Please check AMD website for AMD CrossFireX™ driver updates.

> 1. If a customer incorrectly configures their system they will not see the performance benefits of CrossFireX™. All three CrossFireX™ components, a CrossFireX™ Ready graphics card, a CrossFireX™ Ready motherboard and a CrossFireX™ Edition co-processor graphics card, must be installed correctly to benefit from the CrossFireX™ multi-GPU platform.
> 2. If you pair a 12-pipe CrossFireX™ Edition card with a 16-pipe card, both cards will operate as 12-pipe cards while in CrossFireX™ mode.

### 2.5.1 Graphics Card Setup

> Different CrossFireX™ cards may require different methods to enable CrossFireX™ feature. For other CrossFireX™ cards that AMD has released or will release in the future, please refer to AMD graphics card manuals for detailed installation guide.

Step 1.    Insert one Radeon graphics card into PCIE2 slot and the other Radeon graphics card to PCIE5 slot. Make sure that the cards are properly seated on the slots.

Step 2.   Connect two Radeon graphics cards by installing CrossFire Bridge on CrossFire Bridge Interconnects on the top of Radeon graphics cards. (CrossFire Bridge is provided with the graphics card you purchase, not bundled with this motherboard. Please refer to your graphics card vendor for details.)



**CrossFire Bridge**



**or**
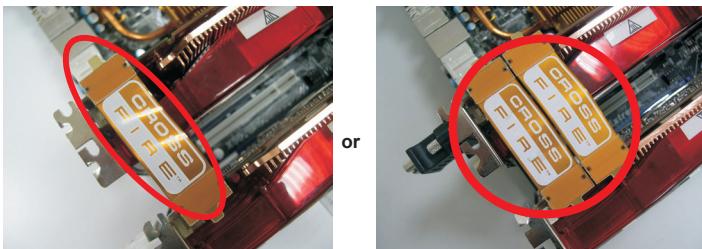
Step 3.   Connect the DVI monitor cable to the DVI connector on the Radeon graphics card on PCIE2 slot. (You may use the DVI to D-Sub adapter to convert the DVI connector to D-Sub interface, and then connect the D-Sub monitor cable to the DVI to D-Sub adapter.)

## 2.5.2 Driver Installation and Setup

Step 1.   Power on your computer and boot into OS.

Step 2.   Remove the AMD driver if you have any VGA driver installed in your system.

> The Catalyst Uninstaller is an optional download. We recommend using this utility to uninstall any previously installed Catalyst drivers prior to installation. Please check AMD website for AMD driver updates.

Step 3.   Install the required drivers to your system.

**For Windows® 8 / 7 / Vista™ OS:**

Install the CATALYST Control Center. Please check AMD website for details.

Step 4.   Restart your computer.

Step 5.   Install the VGA card drivers to your system, and restart your computer. Then you will find "ATI Catalyst Control Center" on your Windows® taskbar.



**ATI Catalyst Control Center**

Step 6.   Double-click "ATI Catalyst Control Center". Click "View", select "CrossFireX™", and then check the item "Enable CrossFireX™". Select "2 GPUs" and click "Apply" (if you install two Radeon graphics cards).

Although you have selected the option "Enable CrossFire™", the Cross-FireX™ function may not work actually. Your computer will automatically reboot. After restarting your computer, please confirm whether the option "Enable CrossFire™" in "ATI Catalyst Control Center" is selected or not; if not, please select it again, and then you are able to enjoy the benefit of CrossFireX™ feature.

Step 7.    You can freely enjoy the benefit of CrossFireX™ or Quad CrossFireX™ feature.

 * CrossFireX™ appearing here is a registered trademark of AMD Technologies Inc., and is used only for identification or explanation and to the owners' benefit, without intent to infringe.
 *  For further information of AMD CrossFireX™ technology, please check AMD website for updates and details.

## 2.6 AMD Dual Graphics Operation Guide

This motherboard supports AMD Dual Graphics feature. AMD Dual Graphics brings multi-GPU performance capabilities by enabling an AMD A55 FCH (Hudson-D2) integrated graphics processor and a discrete graphics processor to operate simultaneously with combined output to a single display for blisteringly-fast frame rates. Currently, AMD Dual Graphics Technology is only supported with Windows® 8 / 7 OS, and is not available with Windows® Vista™ OS.

**What does an AMD Dual Graphics system include?**

An AMD Dual Graphics system includes an AMD Radeon HD 7000 graphics processor and a motherboard based on an AMD A55 FCH (Hudson-D2) integrated chipset, all operating in a Windows® 8 / 7 environment. Please refer to AMD website for further information.
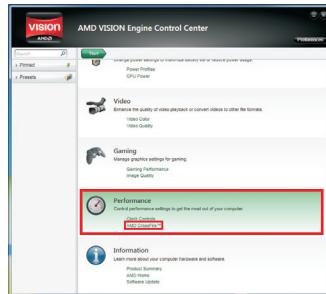
## Enjoy the benefit of AMD Dual Graphics

Step 1.    Please keep the default UEFI setting of "Dual Graphics" option on [Auto].

Step 2.    Install one AMD RADEON PCI Express graphics card to PCIE2 slot.

Step 3.    Connect the monitor cable to the onboard VGA port. Please be noted that the current VGA driver / VBIOS can allow Dual Graphics output from on-board display only. For any future update, please refer to our website for further information.

Step 4.    Boot into OS. Please remove the AMD driver if you have any VGA driver installed in your system.

Step 5.    Install the onboard VGA driver from our support CD to your system for both the onboard VGA and the discrete graphics card.

Step 6.    Restart your computer. Right-click the desktop. Click "AMD VISION Engine Control Center" to enter AMD VISION Engine Control Center.
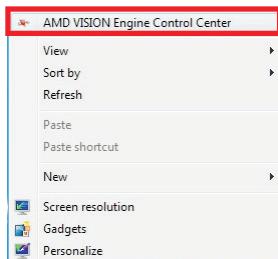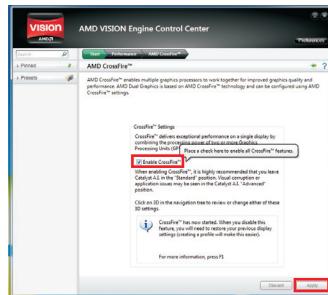
Step 7.    You can also click "AMD VISION Engine Control Center" on your
           Windows® taskbar to enter AMD VISION Engine Control Center.



**AMD VISION Engine Control Center**

Step 8.    In AMD VISION Engine Control Center, please choose "Performance".
           Click "AMD CrossFire™".



Step 9.    Click "Enable CrossFire™" and click "Apply" to save your change.



Step 10.  Reboot your system. Then you can freely enjoy the benefit of Dual
          Graphics feature.

 * Dual Graphics appearing here is a registered trademark of AMD Technologies Inc., and is
   used only for identification or explanation and to the owners' benefit, without intent to infringe.
 *  For further information of AMD Dual Graphics technology, please check AMD website for up
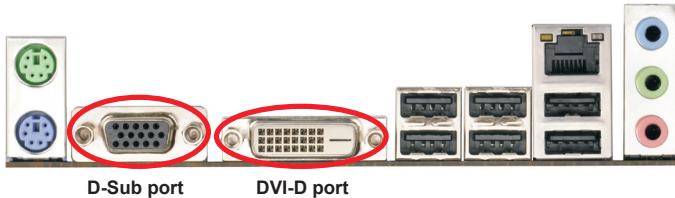   dates and details.

## 2.7 Dual Monitor and Surround Display Features

**Dual Monitor Feature**

This motherboard supports dual monitor feature. With the internal VGA output sup-
port (D-Sub and DVI-D), you can easily enjoy the benefits of dual monitor feature
without installing any add-on VGA card to this motherboard. This motherboard also
provides independent display controllers for D-Sub and DVI-D to support dual VGA
output so that D-Sub and DVI-D can drive same or different display contents.
To enable dual monitor feature, please follow the below steps:

1. Connect D-Sub monitor cable to D-Sub port on the I/O panel, or connect DVI-D
   monitor cable to DVI-D port on the I/O panel.



**D-Sub port**          **DVI-D port**

2. If you have installed onboard VGA driver from our support CD to your system
   already, you can freely enjoy the benefits of dual monitor function after your
   system boots. If you haven't installed onboard VGA driver yet, please install
   onboard VGA driver from our support CD to your system and restart your
   computer.

> When you playback HDCP-protected video from Blu-ray (BD) or
> HD-DVD disc, the content will be displayed only in one of the two
> monitors instead of both monitors.

**Surround Display Feature**

This motherboard supports surround display upgrade. With the internal VGA output support (D-Sub and DVI-D) and external add-on PCI Express VGA cards, you can easily enjoy the benefits of surround display feature.

Please refer to the following steps to set up a surround display environment:

1. Install the PCI Express VGA cards on PCIE2 and PCIE5 slots. Please refer to page 18 for proper expansion card installation procedures for details.
2. Connect D-Sub monitor cable to D-Sub port on the I/O panel, or connect DVI-D monitor cable to DVI-D port on the I/O panel. Then connect other monitor cables to the corresponding connectors of the add-on PCI Express VGA cards on PCIE2 and PCIE5 slots.
3. Boot your system. Press <F2> or <Del> to enter UEFI setup. Enter "Share Memory" option to adjust the memory capability to [32MB], [64MB], [128MB], [256MB], [512MB], [1GB] or [2GB] to enable the function of D-sub. Please make sure that the value you select is less than the total capability of the system memory. If you do not adjust the UEFI setup, the default value of "Share Memory", [Auto], will disable D-Sub function when the add-on VGA card is inserted to this motherboard.
4. Install the onboard VGA driver and the add-on PCI Express VGA card driver to your system. If you have installed the drivers already, there is no need to install them again.
5. Set up a multi-monitor display.

   **For Windows® 8 / 8 64-bit / 7 / 7 64-bit / Vista™ / Vista™ 64-bit OS:**
   Right click the desktop, choose "Personalize", and select the "Display Settings" tab so that you can adjust the parameters of the multi-monitor according to the steps below.
   A. Click the number "2" icon.
   B. Click the items "This is my main monitor" and "Extend the desktop onto this monitor".
   C. Click "OK" to save your change.
   D. Repeat steps A through C for the display icon identified by the number three to six.
6. Use Surround Display. Click and drag the display icons to positions representing the physical setup of your monitors that you would like to use. The placement of display icons determines how you move items from one monitor to another.

**HDCP Function**
HDCP function is supported on this motherboard. To use HDCP function with this motherboard, you need to adopt the monitor that supports HDCP function as well. Therefore, you can enjoy the superior display quality with high-definition HDCP encryption contents. Please refer to below instruction for more details about HDCP function.

**What is HDCP?**
HDCP stands for High-Bandwidth Digital Content Protection, a specification developed by Intel® for protecting digital entertainment content that uses the DVI interface. HDCP is a copy protection scheme to eliminate the possibility of intercepting digital data midstream between the video source, or transmitter - such as a computer, DVD player or set-top box - and the digital display, or receiver - such as a monitor, television or projector. In other words, HDCP specification is designed to protect the integrity of content as it is being transmitted.

Products compatible with the HDCP scheme such as DVD players, satellite and cable HDTV set-top-boxes, as well as few entertainment PCs requires a secure connection to a compliant display. Due to the increase in manufacturers employing HDCP in their equipment, it is highly recommended that the HDTV or LCD monitor you purchase is compatible.

## 2.8  ASRock Smart Remote Installation Guide

ASRock Smart Remote is only used for ASRock motherboard with CIR header. Please refer to below procedures for the quick installation and usage of ASRock Smart Remote.

Step1.    Find the CIR header located next to the USB 2.0 header on ASRock motherboard.

USB 2.0 header (9-pin, black)

CIR header (4-pin, gray)

Step2.    Connect the front USB cable to the USB 2.0 header (as below, pin 1-5) and the CIR header. Please make sure the wire assignments and the pin assignments are matched correctly.

USB_PWR

P-

P+

GND

DUMMY

GND

IRTX

IRRX

ATX+5VSB
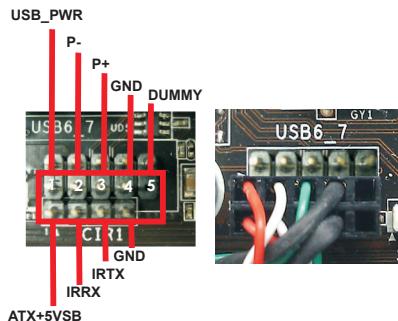
Step3.    Install Multi-Angle CIR Receiver to the front USB port.

Step4.    Boot up your system. Press <F2> or <Del> to enter BIOS Setup Utility. Make sure the option "CIR Controller" is setting at [Enabled]. (Advanced -> Super IO Configuration -> CIR Controller -> [Enabled])

> If you cannot find this option, please shut down your system and install Multi-Angle CIR Receiver to the other front USB port then try again.

Step5.    Enter Windows. Execute ASRock support CD and install CIR Driver. (It is listed at the bottom of driver list.)
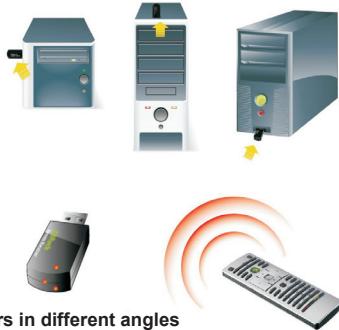
**3 CIR sensors in different angles**



1. Only one of the front USB port can support CIR function. When the CIR function is enabled, the other port will remain USB function.
2. Multi-Angle CIR Receiver is used for front USB only. Please do not use the rear USB bracket to connect it on the rear panel. Multi-Angle CIR Receiver can receive the multi-direction infrared signals (top, down and front), which is compatible with most of the chassis on the market.
3. The Multi-Angle CIR Receiver does not support Hot-Plug function. Please install it before you boot the system.

\* ASRock Smart Remote is only supported by some of ASRock motherboards. Please refer to ASRock website for the motherboard support list: http://www.asrock.com

## 2.9 Jumpers Setup

The illustration shows how jumpers are setup. When the jumper cap is placed on pins, the jumper is "Short". If no jumper cap is placed on pins, the jumper is "Open". The illustration shows a 3-pin jumper whose pin1 and pin2 are "Short" when jumper cap is placed on these 2 pins.



Short    Open
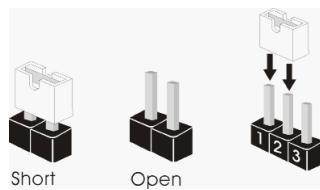
| Jumper | Setting | | Description |
|---|---|---|---|
| Clear CMOS Jumper (CLRCMOS1) (see p.13, No. 15) | 1_2 Default | 2_3 Clear CMOS | |

Note: CLRCMOS1 allows you to clear the data in CMOS. To clear and reset the system parameters to default setup, please turn off the computer and unplug the power cord from the power supply. After waiting for 15 seconds, use a jumper cap to short pin2 and pin3 on CLRCMOS1 for 5 seconds. However, please do not clear the CMOS right after you update the BIOS. If you need to clear the CMOS when you just finish updating the BIOS, you must boot up the system first, and then shut it down before you do the clear-CMOS action. Please be noted that the password, date, time, user default profile, 1394 GUID and MAC address will be cleared only if the CMOS battery is removed.

## 2.10 Onboard Headers and Connectors

Onboard headers and connectors are NOT jumpers. Do NOT place jumper caps over these headers and connectors. Placing jumper caps over the headers and connectors will cause permanent damage of the motherboard!
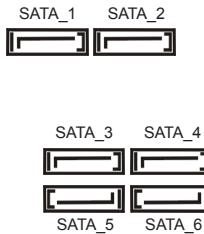
**Serial ATA2 Connectors**

(SATA_1: see  p.13, No. 9)
(SATA_2: see  p.13, No. 8)
(SATA_3: see  p.13, No. 20)
(SATA_4: see  p.13, No. 17)
(SATA_5: see  p.13, No. 19)
(SATA_6: see  p.13, No. 18)

SATA_1  SATA_2

SATA_3  SATA_4

SATA_5  SATA_6

These six Serial ATA2 (SATA2) connectors support SATA data cables for internal storage devices. The current SATA2 interface allows up to 3.0 Gb/s data transfer rate.

**Serial ATA (SATA)**
**Data Cable**
**(Optional)**

Either end of the SATA data cable can be connected to the SATA2 hard disk or the SATA2 connector on this motherboard.

**USB 2.0 Headers**

(9-pin USB6_7)
(see p.13  No. 22)

USB_PWR
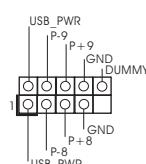P-7
P+7
GND
DUMMY
1
GND
P+6
P-6
USB_PWR
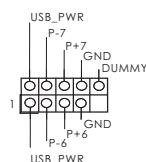
Besides six default USB 2.0 ports on the I/O panel, there are two USB 2.0 headers on this motherboard. Each USB 2.0 header can support two USB 2.0 ports.
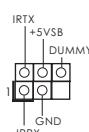
(9-pin USB8_9)
(see p.13  No. 21)

USB_PWR
P-9
P+9
GND
DUMMY
1
GND
P+8
P-8
USB_PWR

**Infrared Module Header**

(5-pin IR1)
(see p.13  No. 24)

IRTX
+5VSB
DUMMY
1
GND
IRRX

This header supports an optional wireless transmitting and receiving infrared module.

**Consumer Infrared Module Header**
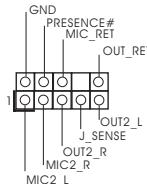(4-pin CIR1)
(see  p.13  No. 23)

```
1 ○○○○
        GND
      IRTX
    IRRX
  ATX+5VSB
```

This header can be used to connect the remote controller receiver.

**Front Panel Audio Header**
(9-pin  HD_AUDIO1)
(see  p.13  No. 27)

```
        GND
        PRESENCE#
        MIC_RET
            OUT_RET
    ○○○ │ ○
1 ○○○○○
            OUT2_L
        J_SENSE
      OUT2_R
    MIC2_R
  MIC2_L
```

This is an interface for the front panel audio cable that allows convenient connection and control of audio devices.

1. High Definition Audio supports Jack Sensing, but the panel wire on the chassis must support HDA to function correctly. Please follow the instruction in our manual and chassis manual to install your system.
2. If you use AC'97 audio panel, please install it to the front panel audio header as below:
   A. Connect Mic_IN (MIC) to MIC2_L.
   B. Connect Audio_R (RIN) to OUT2_R and Audio_L (LIN) to OUT2_L.
   C. Connect Ground (GND) to Ground (GND).
   D. MIC_RET and OUT_RET are for HD audio panel only. You don't need to connect them for AC'97 audio panel.
   E. To activate the front mic.
      For Windows® 8 / 8 64-bit / 7 / 7 64-bit / Vista™ / Vista™ 64-bit OS:
      Go to the "FrontMic" Tab in the Realtek Control panel. Adjust "Recording Volume".

**System Panel Header**
(9-pin PANEL1)
(see p.13  No. 14)

```
        PLED+
        PLED-
            PWRBTN#
            GND
    ○○○○ │ ○
1 ○○○○○
            DUMMY
        RESET#
      GND
    HDLED-
  HDLED +
```
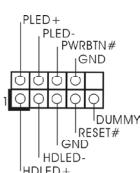
This header accommodates several system front panel functions.

Connect the power switch, reset switch and system status indicator on the chassis to this header according to the pin assignments below. Note the positive and negative pins before connecting the cables.

**PWRBTN (Power Switch):**
Connect to the power switch on the chassis front panel. You may configure the way to turn off your system using the power switch.
**RESET (Reset Switch):**
Connect to the reset switch on the chassis front panel. Press the reset switch to restart the computer if the computer freezes and fails to perform a normal restart.
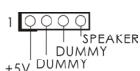
Chassis Speaker Header

(4-pin SPEAKER 1)

(see p.13  No. 13)

Please connect the chassis speaker to this header.

Power LED Header

(3-pin PLED1)

(see p.13  No. 16)

Please connect the chassis power LED to this header to indicate system power status. The LED is on when the system is operating. The LED keeps blinking in S1 state. The LED is off in S3/S4 state or S5 state (power off).

Chassis Fan Connectors
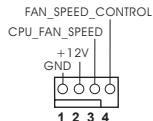
(4-pin CHA_FAN1)

(see p.13  No. 12)

(4-pin CHA_FAN2)
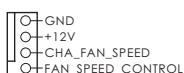
(see p.13  No. 5)

Please connect the fan cable to the fan connector and match the black wire to the ground pin.
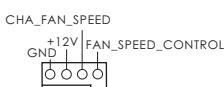
**CPU Fan Connector**

(4-pin CPU_FAN1)

(see p.13 No. 4)

FAN_SPEED_CONTROL
CPU_FAN_SPEED
+12V
GND

**1 2 3 4**

Please connect the CPU fan cable to the connector and match the black wire to the ground pin.

Though this motherboard provides 4-Pin CPU fan (Quiet Fan) support, the 3-Pin CPU fan still can work successfully even without the fan speed control function. If you plan to connect the 3-Pin CPU fan to the CPU fan connector on this motherboard, please connect it to Pin 1-3.
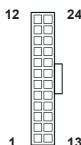
**Pin 1-3 Connected** ◄

3-Pin Fan Installation

---

**ATX Power Connector**

(24-pin ATXPWR1)

(see p.13 No. 7)

**12**   **24**

**1**   **13**

Please connect an ATX power supply to this connector.

Though this motherboard provides 24-pin ATX power connector, it can still work if you adopt a traditional 20-pin ATX power supply. To use the 20-pin ATX power supply, please plug your power supply along with Pin 1 and Pin 13.

**12**   **24**

**1**   **13**

20-Pin ATX Power Supply Installation

---

**ATX 12V Power Connector**

(8-pin  ATX12V1)

(see p.13  No. 1)

**5**   **1**

**8**   **4**

Please connect an ATX 12V power supply to this connector.

Though this motherboard provides 8-pin ATX 12V power connector, it can still work if you adopt a traditional 4-pin ATX 12V power supply. To use the 4-pin ATX power supply, please plug your power supply along with Pin 1 and Pin 5.
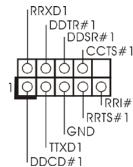
**5**   **1**

**8**   **4**

4-Pin ATX 12V Power Supply Installation

Serial port Header                This COM1 header supports a
(9-pin COM1)                       serial port module.
(see p.13  No. 25)

RRXD1
DDTR#1
DDSR#1
CCTS#1
RRI#
RRTS#1
GND
TTXD1
DDCD#1

HDMI_SPDIF Header                  HDMI_SPDIF header, providing
(2-pin HDMI_SPDIF1)                SPDIF audio output to HDMI
(see p.13  No. 26)                 VGA card, allows the system to
                                    connect HDMI Digital TV/
                                   projector/LCD devices. Please
                                   connect the HDMI_SPDIF
                                   connector of HDMI VGA card to
                                   this header.

GND
SPDIFOUT

## 2.11  Serial ATA2 (SATA2) Hard Disks Installation

This motherboard adopts AMD A55 FCH (Hudson-D2) chipset that supports Serial ATA2 (SATA2) hard disks and RAID (RAID 0, RAID 1 and RAID 10) functions. You may install SATA2 hard disks on this motherboard for internal storage devices. This section will guide you to install the SATA2 hard disks.

STEP 1:  Install the SATA2 hard disks into the drive bays of your chassis.

STEP 2:  Connect the SATA power cable to the SATA2 hard disk.

STEP 3:  Connect one end of the SATA data cable to the motherboard's SATA2 con-
nector.

STEP 4:  Connect the other end of the SATA data cable to the SATA2 hard disk.

## 2.12  Hot Plug and Hot Swap Functions for Serial ATA2 (SATA2) HDDs

This motherboard supports Hot Plug and Hot Swap functions for SATA2 in RAID / AHCI mode. AMD A55 FCH (Hudson-D2) chipset provides hardware support for Advanced Host controller Interface (AHCI), a new programming interface for SATA host controllers developed thru a joint industry effort.

**NOTE**

**What is Hot Plug Function?**

If the SATA2 HDDs are NOT set for RAID configuration, it is called "Hot Plug" for the action to insert and remove the SATA2 HDDs while the system is still power-on and in working condition.

However, please note that it cannot perform Hot Plug if the OS has been installed into the SATA2 HDD.

**What is Hot Swap Function?**

If SATA2 HDDs are built as RAID 1 then it is called "Hot Swap" for the action to insert and remove the SATA2 HDDs while the system is still power-on and in working condition.

## 2.13 SATA2 HDD Hot Plug Feature and Operation Guide

This motherboard supports Hot Plug feature for SATA2 HDD in RAID / AHCI mode. Please read below operation guide of Hot Plug feature carefully. Before you process the SATA2 HDD Hot Plug, please check below cable accessories from the motherboard gift box pack.
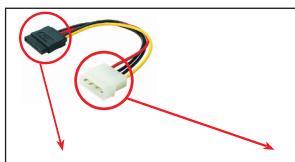
A. 7-pin SATA data cable

B. SATA power cable with SATA 15-pin power connector interface

A. SATA data cable (Red)        B. SATA  power cable
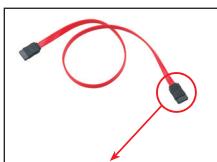
| SATA 7-pin connector | The SATA 15-pin power connector (Black) connect to SATA2 HDD | 1x4-pin conventional power connector (White) connect to power supply |
| --- | --- | --- |

### Caution

1. Without SATA 15-pin power connector interface, the SATA2 Hot Plug cannot be processed.
2. Even some SATA2 HDDs provide both SATA 15-pin power connector and IDE 1x4-pin conventional power connector interfaces, the IDE 1x4-pin conventional power connector interface is definitely not able to support Hot Plug and will cause the HDD damage and data loss.

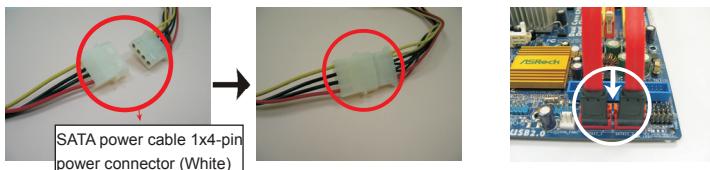### Points of attention, before you process the Hot Plug:

1. Below operation procedure is designed only for our motherboard, which supports SATA2 HDD Hot Plug.
   * The SATA2 Hot Plug feature might not be supported by the chipset because of its limitation, the SATA2 Hot Plug support information of our motherboard is indicated in the product spec on our website: www.asrock.com
2. Make sure your SATA2 HDD can support Hot Plug function from your dealer or HDD user manual. The SATA2 HDD, which cannot support Hot Plug function, will be damaged under the Hot Plug operation.
3. Please make sure the SATA2 driver is installed into system properly. The latest SATA2 driver is available on our support website: www.asrock.com
4. Make sure to use the SATA power cable & data cable, which are from our motherboard package.
5. Please follow below instructions step by step to reduce the risk of HDD crash or data loss.

## How to Hot Plug a SATA2 HDD:

Points of attention, before you process the Hot Plug:
Please do follow below instruction sequence to process the Hot Plug, improper procedure will cause the SATA2 HDD damage and data loss.

Step *1* Please connect SATA power cable 1x4-pin end (White) to the power supply 1x4-pin cable.

Step *2* Connect SATA data cable to the motherboard's SATA2 connector.

SATA power cable 1x4-pin power connector (White)

Step *3* Connect SATA 15-pin power cable connector (Black) end to SATA2 HDD.

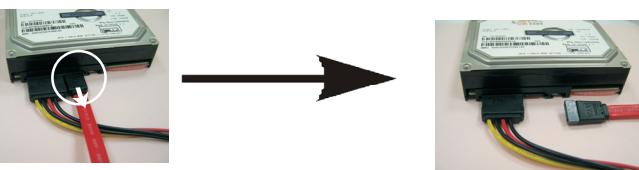Step *4* Connect SATA data cable to the SATA2 HDD.
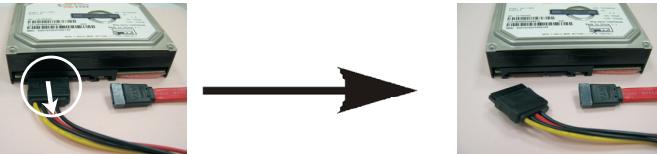
## How to Hot Unplug a SATA2 HDD:

Points of attention, before you process the Hot Unplug:
Please do follow below instruction sequence to process the Hot Unplug, improper procedure will cause the SATA2 HDD damage and data loss.

Step *1* Unplug SATA data cable from SATA2 HDD side.

Step *2* Unplug SATA 15-pin power cable connector (Black) from SATA2 HDD side.

## 2.14 Driver Installation Guide

To install the drivers to your system, please insert the support CD to your optical drive first. Then, the drivers compatible to your system can be auto-detected and listed on the support CD driver page. Please follow the order from up to bottom side to install those required drivers. Therefore, the drivers you install can work properly.

## 2.15 Installing Windows® 8 / 8 64-bit / 7 / 7 64-bit / Vista™ / Vista™ 64-bit With RAID Functions

If you want to install Windows® 8 / 8 64-bit / 7 / 7 64-bit / Vista™ / Vista™ 64-bit on a RAID disk composed of 2 or more SATA2 HDDs with RAID functions, please follow below steps.

**STEP 1: Set up UEFI.**

A.          Enter UEFI SETUP UTILITY→Advanced screen →Storage Configuration.

B.          Set the "SATA Mode" option to [RAID].

**STEP 2: Use "RAID Installation Guide" to set RAID configuration.**

Before you start to configure RAID function, you need to check the RAID installation guide in the Support CD for proper configuration. Please refer to the BIOS RAID installation guide part of the document in the following path in the Support CD:

**.. \ RAID Installation Guide**

**STEP 3: Install Windows® 8 / 8 64-bit / 7 / 7 64-bit / Vista™ / Vista™ 64-bit OS on your system.**

Use the option "Easy RAID Installer" in UEFI setup utility to copy the RAID drivers to your USB flash disk. Insert the Windows® OS optical disk into the optical drive to boot your system, and follow the instruction to install OS on your system. When you see "Where do you want to install Windows?" page, please insert your USB flash disk to your system, and click the "Load Driver" button to load the RAID drivers. After that, you can continue the OS installation.

## 2.16 Installing Windows® 8 / 8 64-bit / 7 / 7 64-bit / Vista™ / Vista™ 64-bit Without RAID Functions

If you want to install Windows® 8 / 8 64-bit / 7 / 7 64-bit / Vista™ / Vista™ 64-bit on your SATA2 HDDs without RAID functions, please follow below steps.

**Using SATA2 HDDs with NCQ and Hot Plug functions (AHCI mode)**

**STEP 1: Set up UEFI.**
A.         Enter UEFI SETUP UTILITY →Advanced screen → Storage Configuration.
B.         Set the "SATA Mode" option to [AHCI].
**STEP 2: Install Windows® 8 / 8 64-bit / 7 / 7 64-bit / Vista™ / Vista™ 64-bit OS on your system.**

**Using SATA2 HDDs without NCQ and Hot Plug functions (IDE mode)**

**STEP 1: Set up UEFI.**
A.         Enter UEFI SETUP UTILITY →Advanced screen →Storage Configuration.
B.         Set the "SATA Mode" option to [IDE].
**STEP 2: Install Windows® 8 / 8 64-bit / 7 / 7 64-bit / Vista™ / Vista™ 64-bit OS on your system.**

# *3. UEFI SETUP UTILITY*

## 3.1 Introduction

ASRock Interactive UEFI is a blend of system configuration tools, cool sound effects and stunning visuals. Not only will it make BIOS setup less difficult but also a lot more amusing. This section explains how to use the UEFI SETUP UTILITY to configure your system. The UEFI chip on the motherboard stores the UEFI SETUP UTILITY. You may run the UEFI SETUP UTILITY when you start up the computer. Please press <F2> or <Delete> during the Power-On-Self-Test (POST) to enter the UEFI SETUP UTILITY, otherwise, POST will continue with its test routines.

If you wish to enter the UEFI SETUP UTILITY after POST, restart the system by pressing <Ctl> + <Alt> + <Delete>, or by pressing the reset button on the system chassis. You may also restart by turning the system off and then back on.

> Because the UEFI software is constantly being updated, the following UEFI setup screens and descriptions are for reference purpose only, and they may not exactly match what you see on your screen.

### 3.1.1 UEFI Menu Bar

The top of the screen has a menu bar with the following selections:

| | |
|---|---|
| **Main** | For setting system time/date information |
| **OC Tweaker** | For overclocking configurations |
| **Advanced** | For advanced system configurations |
| **Tool** | Useful tools |
| **H/W Monitor** | Displays current hardware status |
| **Boot** | For configuring boot settings and boot priority |
| **Security** | For security settings |
| **Exit** | Exit the current screen or the UEFI SETUP UTILITY |

Use < ← > key or < → > key to choose among the selections on the menu bar, and use < ↑ > key or < ↓ > key to move the cursor up or down to select items, then press <Enter> to get into the sub screen. You can also navigate with a mouse.

### 3.1.2  Navigation Keys

Please check the following table for the function description of each navigation key.

| Navigation Key(s) | Function Description |
|---|---|
| ← / → | Moves cursor left or right to select Screens |
| ↑ / ↓ | Moves cursor up or down to select items |
| + / - | To change option for the selected items |
| **\<Tab>** | Switch to next function |
| **\<Enter>** | To bring up the selected screen |
| **\<PGUP>** | Go to the previous page |
| **\<PGDN>** | Go to the next page |
| **\<HOME>** | Go to the top of the screen |
| **\<END>** | Go to the bottom of the screen |
| **\<F1>** | To display the General Help Screen |
| **\<F7>** | Discard changes and exit the UEFI SETUP UTILITY |
| **\<F9>** | Load optimal default values for all the settings |
| **\<F10>** | Save changes and exit the UEFI SETUP UTILITY |
| **\<F12>** | Print screen |
| **\<ESC>** | Jump to the Exit Screen or exit the current screen |

### 3.2  Main Screen

When you enter the UEFI SETUP UTILITY, the Main screen will appear and display the system overview.



#### Active Page on Entry

This allows you to select the default page when entering UEFI setup utility.

## 3.3 OC Tweaker Screen

In the OC Tweaker screen, you can set up overclocking features.



**EZ OC Mode**

You can use this option to adjust EZ overclocking setting. Please note that overclocing may cause damage to your components and motherboard. It should be done at your own risk and expense.

**CPU Configuration**
**Overclock Mode**

Use this to select Overclock Mode. Configuration options: [Auto] and [Manual]. The default value is [Auto].

**APU/PCIE Frequency (MHz)**

This item appears only when you set the item "Overclock Mode" to [Manual]. The default value is [Disabled]. Please be noted that overclocking may reduce the D-Sub resolution and cause the display abnormal situation. It is recommended to use the DVI monitor to get better performance.

**Spread Spectrum**

This item should always be [Auto] for better system stability.

**AMD Turbo Core Technology**

This item appears only when the processor you adopt supports this feature. Use this to select enable or disable AMD Turbo Core Technology. Configuration options: [Enabled] and [Disabled]. The default value is [Enabled].

**Processor Maximum Frequency**

It will display Processor Maximum Frequency for reference.

**Processor Maximum Voltage**

It will display Processor Maximum Voltage for reference.

**Multiplier/Voltage Change**

This item is set to [Auto] by default. If it is set to [Manual], you may adjust the value of Processor Frequency and Processor Voltage. However, it is recommended to keep the default value for system stability.

**Boost Frequency Multiplier**

For safety and system stability, it is not recommended to adjust the value of this item.

**CPU Frequency Multiplier**

For safety and system stability, it is not recommended to adjust the value of this item.

**CPU Voltage**

It allows you to adjust the value of CPU voltage. However, for safety and system stability, it is not recommended to adjust the value of this item.

**CPU Voltage Offset**

It allows you to adjust the value of CPU voltage offset. However, for safety and system stability, it is not recommended to adjust the value of this item.

**CPU NB Frequency Multiplier**

For safety and system stability, it is not recommended to adjust the value of this item.

**CPU NB/GFX Voltage**

It allows you to adjust the value of CPU NB/GFX voltage. However, for safety and system stability, it is not recommended to adjust the value of this item.

**APU Load-line Calibration**

APU Load-line Calibration helps prevent APU voltage droop when the system is under heavy load.

**GFX Engine Clock**

Use this to adjust GFX Engine Clock. The default value is [Auto].

**GFX Engine Voltage**

Use this to adjust GFX Engine voltage. The default value is [Auto].

**DRAM Timing Configuration**
**DRAM Frequency**

If [Auto] is selected, the motherboard will detect the memory module(s) inserted and assigns appropriate frequency automatically.

**DRAM Timing Control**



**DRAM Slot**

Use this item to view SPD data.

**DRAM Timing Control**

Use this item to control DRAM timing.

**Power Down Enable**

Use this item to enable or disable DDR power down mode.

**Bank Interleaving**

Interleaving allows memory accesses to be spread out over banks on the same node, or accross nodes, decreasing access contention.

**Channel Interleaving**

It allows you to enable Channel Memory Interleaving. Configuration options: [Disabled], [Auto]. The default value is [Auto].

**Voltage Configuration**

**DRAM Voltage**

Use this to select DRAM Voltage. The default value is [Auto].

**+1.20V Voltage**

Use this to select +1.20V Voltage. The default value is [Auto].

### 3.4 Advanced Screen

In this section, you may set the configurations for the following items: CPU Configuration, Nouth Bridge Configuration, South Bridge Configuration, Storage Configuration, Super IO Configuration, ACPI Configuration and USB Configuration.



Setting wrong values in this section may cause the system to malfunction.

### 3.4.1 CPU Configuration



**Core C6 Mode**

Use this item to enable or disable Core C6 mode. The default value is [Enabled].

**Package C6 Mode**

This item appears only when you enable the item "Core C6 Mode". Use this item to enable or disable Package C6 mode. The default value is [Disabled].

**Cool 'n' Quiet**

Use this item to enable or disable AMD's Cool 'n' Quiet™ technology. The default value is [Enabled]. Configuration options: [Enabled] and [Disabled]. If you install Windows® 8 / 7 / Vista™ and want to enable this function, please set this item to [Enabled]. Please note that enabling this function may reduce CPU voltage and memory frequency, and lead to system stability or compatibility issue with some memory modules or power supplies. Please set this item to [Disable] if above issue occurs.

**SVM**

When this option is set to [Enabled], a VMM (Virtual Machine Architecture) can utilize the additional hardware capabilities provided by AMD-V. The default value is [Enabled]. Configuration options: [Enabled] and [Disabled].

**CPU Thermal Throttle**

Use this item to enable CPU internal thermal control mechanism to keep the CPU from overheated. The default value is [Auto].

### 3.4.2 North Bridge Configuration



**Primary Graphics Adapter**

    This item will switch the PCI Bus scanning order while searching for video card. It allows you to select the type of Primary VGA in case of multiple video controllers. The default value of this feature is [PCI Express]. Con-figuration options: [Onboard], [PCI] and [PCI Express].

**Share Memory**

    This allows you to set the share memory feature. The default value is [Auto]. Configuration options: [Auto], [32MB], [64MB], [128MB], [256MB] [512MB], [1GB] and [2GB].

**Onboard HDMI HD Audio**

    This allows you to enable or disable the "Onboard HDMI HD Audio" fea-ture.

**Dual Graphics**

    This item appears only when you install AMD RADEON graphics card on this motherboard. Use this to enable or disable Dual Graphics feature. If you enable this option, the primary monitor will be onboard VGA. If you se-lect [Auto], Dual Graphics function will be automatically enabled when you install AMD RADEON graphics card. The default value is [Auto].

**DVI Function**

    Use this to select DVI function when you install the DVI to HDMI adapter to DVI port. Configuration options: [as Dual Link DVI] and [as HDMI]. If you select [as Dual Link DVI], you can use Dual Link DVI monitor without au-dio function. If you select [as HDMI], you can use HDMI monitor with audio function. The default value is [as Dual Link DVI].

### 3.4.3 South Bridge Configuration



**Onboard HD Audio**

Select [Auto], [Enabled] or [Disabled] for the onboard HD Audio feature. If you select [Auto], the onboard HD Audio will be disabled when PCI Sound Card is plugged.

**Front Panel**

Select [Auto] or [Disabled] for the onboard HD Audio Front Panel.

**Onboard LAN**

This allows you to enable or disable the onboard LAN feature.

**Good Night LED**

Enable this option to turn off Power LED when the system is power on. The keyboard LED will also be turned off in S1, S3 and S4 state. The default value is [Auto].

### 3.4.4 Storage Configuration



**SATA Controller**

Use this item to enable or disable the "SATA Controller" feature.

**SATA Mode**

Use this item to adjust SATA Mode. The default value of this option is [AHCI Mode]. Configuration options: [AHCI Mode], [RAID Mode] and [IDE Mode].

> If you set this item to RAID mode, it is suggested to install SATA ODD driver on SATA_5 and SATA_6 ports.

**Easy RAID Installer**

Easy RAID Installer can help you to copy the RAID driver from a support CD to your USB storage device. After copying the RAID driver to your USB storage device, please change "SATA Mode" to "RAID", then you can start installing the OS in RAID mode.

**AMD AHCI BIOS ROM**

Use this item to enable or disable AMD AHCI BIOS ROM. The default value of this option is [Disabled].

**SATA IDE Combined Mode**

This item is for SATA_5 and SATA_6 ports. Use this item to enable or disable SATA IDE combined mode. The default value is [Enabled].

> If you want to build RAID on SATA_5 and SATA_6 ports, please disable this item.

**Hard Disk S.M.A.R.T.**

Use this item to enable or disable the S.M.A.R.T. (Self-Monitoring, Analysis, and Reporting Technology) feature. Configuration options: [Disabled], [Auto], [Enabled].

### 3.4.5 Super IO Configuration



**Serial Port**

Use this item to enable or disable the onboard serial port.

> **Serial Port Address**
>
> Use this item to set the address for the onboard serial port.
>
> Configuration options: [3F8h / IRQ4] and [3E8h / IRQ4].

**Infrared Port**

Use this item to enable or disable the onboard infrared port.

> **Infrared Port Address**
>
> Use this item to set the address for the onboard infrared port.
>
> Confi guration options: [2F8h / IRQ3] and [2E8h / IRQ3].

### 3.4.6 ACPI Configuration



**Suspend to RAM**

Use this item to select whether to auto-detect or disable the Suspend-to-RAM feature. Select [Auto] will enable this feature if the OS supports it.

**Check Ready Bit**

Use this item to enable or disable the feature Check Ready Bit.

**Restore on AC/Power Loss**

This allows you to set the power state after an unexpected AC/power loss. If [Power Off] is selected, the AC/power remains off when the power recovers. If [Power On] is selected, the AC/power resumes and the system starts to boot up when the power recovers.

**PS/2 Keyboard Power On**

Use this item to enable or disable PS/2 keyboard to turn on the system from the power-soft-off mode.

**Onboard LAN Power On**

Use this item to enable or disable Onboard LAN to turn on the system from the power-soft-off mode.

**Ring-In Power On**

Use this item to enable or disable Ring-In signals to turn on the system from the power-soft-off mode.

**RTC Alarm Power On**

Use this item to enable or disable RTC (Real Time Clock) to power on the system.

**USB Keyboard/Remote Power On**

Use this item to enable or disable USB Keyboard/Remote to power on the system.

**USB Mouse Power On**

Use this item to enable or disable USB Mouse to power on the system.

**ACPI HPET table**

Use this item to enable or disable ACPI HPET Table. The default value is [Enabled]. Please set this option to [Enabled] if you plan to use this motherboard to submit Windows® certification.

**CSM**

Please disable CSM when you enable Fast Boot option. The default value is [Enabled].

### 3.4.7 USB Configuration



**USB 2.0 Controller**

Use this item to enable or disable the use of USB 2.0 controller.

**Legacy USB Support**

Use this option to select legacy support for USB devices. There are four confi guration options: [Enabled], [Auto], [Disabled] and [UEFI Setup Only]. The default value is [Enabled]. Please refer to below descriptions for the details of these four options:

[Enabled] - Enables support for legacy USB.

[Auto] - Enables legacy support if USB devices are connected.

[Disabled] - USB devices are not allowed to use under legacy OS and UEFI setup when [Disabled] is selected. If you have USB compatibility is-sue, it is recommended to select [Disabled] to enter OS.

[UEFI Setup Only] - USB devices are allowed to use only under UEFI setup and Windows / Linux OS.

## 3.5 Tool



**Sound Effect**

Enable or disable sound effects in the setup utility.

**System Browser**

System Browser can let you easily check your current system configuration in UEFI setup.

**OMG(Online Management Guard)**

Administrators are able to establish an internet curfew or restrict internet access at specified times via OMG. You may schedule the starting and ending hours of internet access granted to other users. In order to prevent users from bypassing OMG, guest accounts without permission to modify the system time are required.

**UEFI Update Utility**

**Instant Flash**

Instant Flash is a UEFI flash utility embedded in Flash ROM. This convenient UEFI update tool allows you to update system UEFI without entering operating systems first like MS-DOS or Windows®. Just save the new UEFI file to your USB flash drive, floppy disk or hard drive and launch this tool, then you can update your UEFI only in a few clicks without preparing an additional floppy diskette or other complicated flash utility. Please be noted that the USB flash drive or hard drive must use FAT32/16/12 file system. If you execute Instant Flash utility, the utility will show the UEFI files and their respective information. Select the proper UEFI file to update your UEFI, and reboot your system after the UEFI update process is completed.

**Internet Flash**

Internet Flash searches for available UEFI firmware updates from our servers. In other words, the system can auto-detect the latest UEFI from our servers and flash them without entering Windows OS. Please note that you must be running on a DHCP configured computer in order to enable this function.

**Network Configuration**



**Internet Setting**

Use this item to set up the internet connection mode. Configuration options: [DHCP (Auto IP)] and [PPPOE].

**UEFI Download Server**

Use this item to select UEFI firmware download server for Internet Flash. Configuration options: [Asia], [Europe], [USA] and [China].

**Dehumidifier Function**

Users may prevent motherboard damages due to dampness by enabling "Dehumidifier Function". When enabling Dehumidifier Function, the computer will power on automatically to dehumidify the system after entering S4/S5 state.

**Dehumidifier Period**

This allows users to configure the period of time until the computer powers on and enables "Dehumidifier" after entering S4/S5 state.

**Dehumidifier Duration**

This allows users to configure the duration of the dehumidifying process before it returns to S4/S5 state.

**Dehumidifier CPU Fan Setting**

Use this setting to configure CPU fan speed while "Dehumidifier" is enabled.

**Would you like to save current setting user defaults?**

In this option, you are allowed to load and save three user defaults according to your own requirements.

### 3.6 Hardware Health Event Monitoring Screen

In this section, it allows you to monitor the status of the hardware on your system, including the parameters of the CPU temperature, motherboard temperature, CPU fan speed, chassis fan speed, and the critical voltage.



**CPU Fan 1 Setting**

This allows you to set the CPU fan 1 speed. Confi guration options: [Full On] and [Automatic Mode]. The default is value [Full On].

**Chassis Fan 1 Setting**

This allows you to set the chassis fan 1 speed. Confi guration options: [Full On], [Manual Mode] and [Automatic Mode]. The default is value [Full On].

**Chassis Fan 2 Setting**

This allows you to set the chassis fan 2 speed. Confi guration options: [Full On] and [Manual Mode]. The default is value [Full On].

**Over Temperature Protection**

Use this item to enable or disable Over Temperature Protection. The default value is [Enabled].

## 3.7 Boot Screen

In this section, it will display the available devices on your system for you to config-ure the boot settings and the boot priority.



**Fast Boot**

Fast Boot minimizes your computer's boot time. There are three con-figuration options: [Disabled], [Fast] and [Ultra Fast]. The default value is [Disabled]. Please refer to below descriptions for the details of these three options:

[Disabled] - Disable Fast Boot.

[Fast] - The only restriction is you may not boot by using an USB flash drive.

[Ultra Fast] - There are a few restrictions.

1. Only supports Windows® 8 UEFI operating system.
2. You will not be able to enter BIOS Setup (Clear CMOS or run utility in Widows® to enter BIOS Setup).
3. If you are using an external graphics card, the VBIOS must support UEFI GOP in order to boot.

**Boot From Onboard LAN**

Use this item to enable or disable the Boot From Onboard LAN feature.

**Setup Prompt Timeout**

This shows the number of seconds to wait for setup activation key.

**Bootup Num-Lock**

If this item is set to [On], it will automatically activate the Numeric Lock function after boot-up.

**Full Screen Logo**

Use this item to enable or disable OEM Logo. The default value is [En-abled].

**AddOn ROM Display**

Use this option to adjust AddOn ROM Display. If you enable the option "Full Screen Logo" but you want to see the AddOn ROM information when the system boots, please select [Enabled]. Configuration options: [Enabled] and [Disabled]. The default value is [Enabled].

**Boot Failure Guard**

Enable or disable the feature of Boot Failure Guard.

**Boot Failure Guard Count**

Enable or disable the feature of Boot Failure Guard Count.

## 3.8 Security Screen

In this section, you may set or change the supervisor/user password for the system. For the user password, you may also clear it.



### Secure Boot

Use this to enable or disable Secure Boot. The default value is [Disabled].

## 3.9 Exit Screen



**Save Changes and Exit**

When you select this option, it will pop-out the following message, "Save configuration changes and exit setup?" Select [OK] to save the changes and exit the UEFI SETUP UTILITY.

**Discard Changes and Exit**

When you select this option, it will pop-out the following message, "Discard changes and exit setup?" Select [OK] to exit the UEFI SETUP UTILITY without saving any changes.

**Discard Changes**

When you select this option, it will pop-out the following message, "Discard changes?" Select [OK] to discard all changes.

**Load UEFI Defaults**

Load UEFI default values for all the setup questions. F9 key can be used for this operation.

# 4. Software Support

## 4.1 Install Operating System

This motherboard supports various Microsoft® Windows® operating systems: 8 / 8 64-bit / 7 / 7 64-bit / Vista™ / Vista™ 64-bit. Because motherboard settings and hardware options vary, use the setup procedures in this chapter for general reference only. Refer to your OS documentation for more information.

## 4.2 Support CD Information

The Support CD that came with the motherboard contains necessary drivers and useful utilities that enhance the motherboard features.

### 4.2.1 Running The Support CD

To begin using the support CD, insert the CD into your CD-ROM drive. The CD automatically displays the Main Menu if "AUTORUN" is enabled in your computer. If the Main Menu did not appear automatically, locate and double click on the file "ASSETUP.EXE" from the BIN folder in the Support CD to display the menus.

### 4.2.2 Drivers Menu

The Drivers Menu shows the available devices drivers if the system detects the installed devices. Please install the necessary drivers to activate the devices.

### 4.2.3 Utilities Menu

The Utilities Menu shows the applications software that the motherboard supports. Click on a specific item then follow the installation wizard to install it.

### 4.2.4 Contact Information

If you need to contact ASRock or want to know more about ASRock, welcome to visit ASRock's website at http://www.asrock.com; or you may contact your dealer for further information.

# Installing OS on a HDD Larger Than 2TB

This motherboard is adopting UEFI BIOS that allows Windows® OS to be installed on a large size HDD (>2TB). Please follow below procedure to install the operating system.

1. Please make sure to use **Windows® Vista™ 64-bit (with SP1 or above)**, **Windows® 7 64-bit** or **Windows® 8 64-bit**.
2. Press <F2> or <Delete> at system POST. Set **AHCI Mode** in UEFI Setup Utility > Advanced > Storage Configuration > SATA Mode.
3. Choose the item **"UEFI:xxx"** to boot in UEFI Setup Utility > Boot > Boot Option #1. ("xxx" is the device which contains your Windows® installation files. Normally it is an optical drive.) You can also press <F11> to launch boot menu at system POST and choose the item **"UEFI:xxx"** to boot.
4. Start Windows® installation.

# Installing OS on a HDD Larger Than 2TB in RAID Mode

This motherboard is adopting UEFI BIOS that allows Windows® OS to be installed on a large size HDD (>2TB). Please follow below procedure to install the operating system.

1. Please make sure to use **Windows® Vista™ 64-bit (with SP1 or above)**, **Windows® 7 64-bit** or **Windows® 8 64-bit**.
2. Press <F2> or <Delete> at system POST. Set **RAID Mode** in UEFI Setup Utility > Advanced > Storage Configuration > SATA Mode.
3. Choose **onboard RAID 3TB+ unlocker** > **UEFI Mode For GPT partition**. Press <F10> to save the change and exit.
4. Press <F11> to enter Boot Manual. Choose **UEFI : Built - in EFI Shell**.
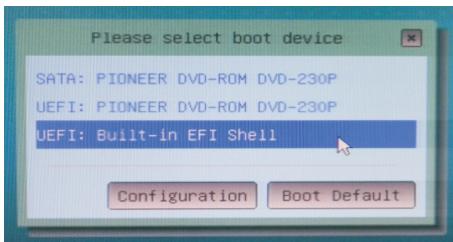


5. Key in **drvcfg**, for example you will see below:
   **Drv[4E]  Ctrl[B5]  Lang[eng]**



6. Key in **dh [Drv number]**, for example: key in **dh 4E**.

7. And then key in **drvcfg –s [Drv number] [Ctrl number]** to enter Raid Utility.
   For example: key in **drvcfg –s 4E B5**.



8. Choose **Logical Drive Main Menu** to set up Raid Drive.
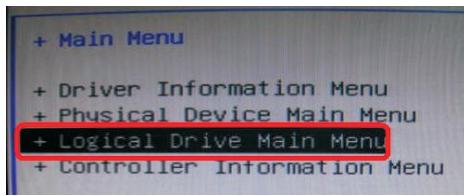


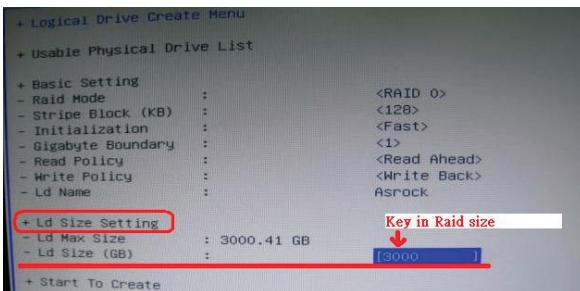9. Choose **Logical Drive Create Menu** to create a Raid Drive.
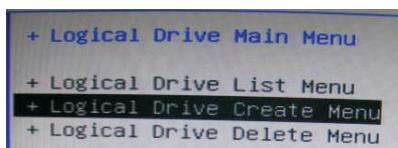


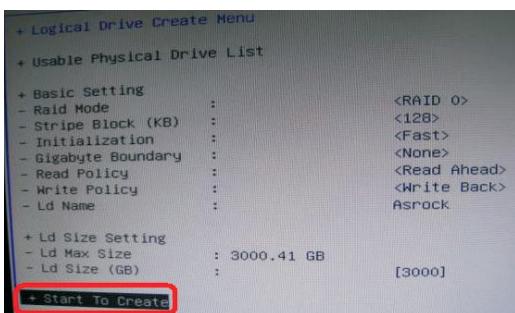10. Choose **Usable Physical Drive List** to select Raid HDD.
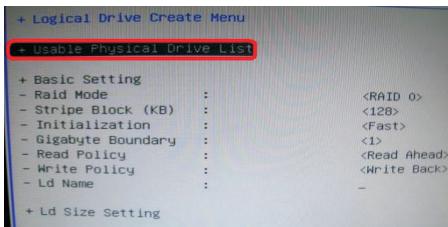
11. Press **Space** on keyboard to toggle checkbox.
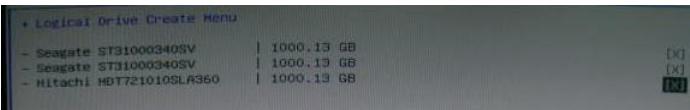


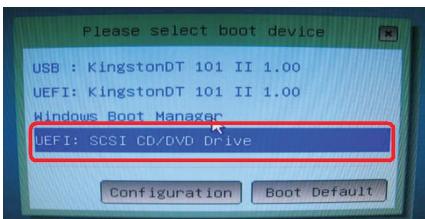12. Choose **Ld Size setting**, and key in the Raid size.



13. After set up Raid size, please click **Start to Create**.



14. Press <F10> to exit Utility.
15. During reboot, please press <F11> to enter Boot Manual. Choose **UEFI: SCSI CD/DVD Drive**.



* This option only shows on Windows® 8 64-bit, 7 64-bit and Vista™ 64-bit OS.

16. Follow Windows® Installation Guide to install OS.

If you install Windows® 8 64-bit / 7 64-bit / Vista™ 64-bit in a large hard disk (ex. Disk volume > 2TB), it may take more time to boot into Windows® or install driver/utilities. If you encounter this problem, you will need to following instructions to fix this problem.
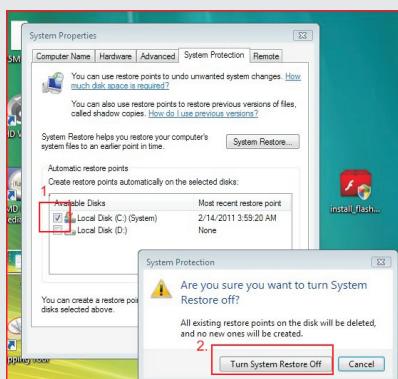
**Windows® Vista™ 64-bit:**
Microsoft® does not provide hotfix for this problem. Below steps are Microsoft® suggested solution:

A. Disable System Restore.
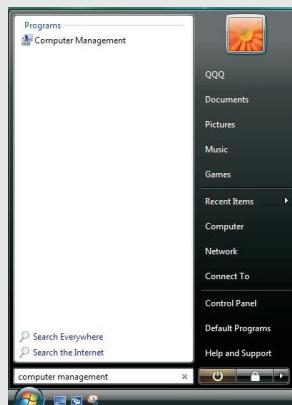   a. Type "systempropertiesprotection" in the Start Menu. Then press "Enter".
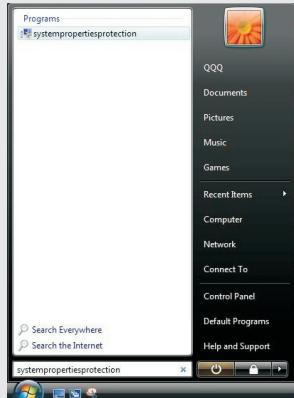


   b. De-select Local Disks for System Restore. Then Click "Turn System Restore Off" to confirm. Then Press "Ok".
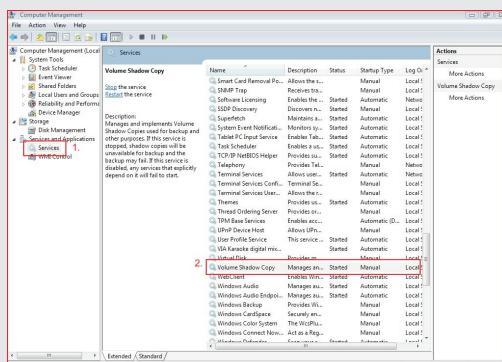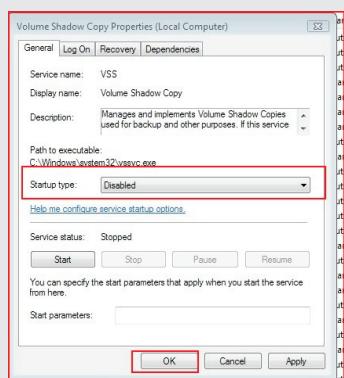
B. Disable "Volume Shadow Copy" service.

  a. Type "computer management" in the Start Menu, then press "Enter".



  b. Go to "Services and Applications>Services"; Then double click "Volume Shadow Copy".



  c. Set "Startup type" to "Disable" then Click "OK".

C. Reboot your system.

D. After reboot, please start to install motherboard drivers and utilities.

**Windows® 8 64-bit / 7 64-bit:**

A. Please request the hotfix KB2505454 thru this link:
   http://support.microsoft.com/kb/2505454/

B. After installing Windows® 8 64-bit / 7 64-bit, install the hotfix kb2505454.
   (This may take long time; >30 mins.)

C. Reboot your system. (It may take about 5 mins to boot.)

D. The Windows® will install this hotfix then reboot by itself.

E. Please start to install motherboard drivers and utilities.

17. Finish.